IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method for supporting digital signal processing (DSP) of a plurality of data types, the method comprising:

continuously broadcasting a plurality of algorithms embodied as ~~software routines~~ executable instructions toward a plurality of DSPs;

selectively monitoring for and receiving ~~the software~~ executable instructions for at least one algorithm of the plurality of algorithms in response to a determination of a type of data that one of the plurality of DSPs is to process; and,

processing data with the ~~software~~ selectively monitored for and received executable instructions and the one DSP by executing at least a portion of the ~~software for the at least one algorithm~~ selectively monitored for and received executable instructions upon the one DSP, the data being of the type of data, the processing to process the data as it travels between networks.

2. (previously presented) The method of claim 1, further comprising:

receiving at least one pulse coded modulation (PCM) data stream from a public switched telephone network (PSTN);

generating at least one packet of data from the PCM data stream with the software and the one DSP; and,

transmitting the at least one packet of data over an Internet Protocol (IP) network, the PSTN being a first of the networks, the IP network being a second of the networks.

3. (currently amended) The method of claim 1, further comprising:

receiving at least one packet of data from an IP network;

generating at least one PCM data stream from the at least one packet of data with the ~~software~~ executable instructions for the at least one algorithm and the DSP; and,

transmitting the at least one PCM data stream over a PSTN, the PSTN being a first of the networks, the IP network being a second of the networks.

4. (previously presented) The method of claim 1, wherein the data is part of a bidirectional PCM data stream.

5. (previously presented) The method of claim 1, wherein the data is passed over a bidirectional host bus.

6. (previously presented) The method of claim 1, wherein the plurality of algorithms are continuously broadcasted toward the plurality of DSPs by a master DSP engine that is implemented with a processor.

7. (previously presented) The method of claim 6, wherein the plurality of algorithms are continuously broadcasted toward the plurality of DSPs over a channelized serial bus.

8. (currently amended) The method of claim 7, wherein the selectively monitoring for and receiving of the ~~software~~ executable instructions for the at least one algorithm comprises determining an address of at least one channel of the serial bus on which the ~~software~~ executable instructions for the at least one algorithm is available.

9. (currently amended) The method of claim 8, wherein the selectively monitoring for and receiving of the ~~software~~ executable instructions for the at least one algorithm further comprises unmasking a bit of an interrupt mask, the unmasked bit corresponding to the address of at least one channel of the serial bus on which the ~~software~~ executable instructions for the at least one algorithm is transmitted.

10. (currently amended) The method of claim 9, wherein the selectively monitoring for and receiving of the ~~software~~ executable instructions for the at least one algorithm further comprises:

executing at least one interrupt service routine in response to receiving an interrupt signal corresponding to the unmasked interrupt bit;

receiving the ~~software~~ executable instructions for the at least one algorithm in response to execution of the interrupt service routine; and

storing the received ~~software~~ executable instructions for the at least one algorithm in a memory used by the one DSP.

11. (previously presented) The method of claim 8, wherein a memory accessed by the one DSP comprises data correlating each of the plurality of algorithms with a serial bus channel on which each of the plurality of algorithms are transmitted.

12. (previously presented) The method of claim 8, wherein the data correlating each of the plurality of algorithms with a serial bus channel on which each of the plurality of algorithms are transmitted is downloaded toward the one DSP from the processor.

13. (previously presented) The method of claim 8, wherein the data correlating each of the plurality of algorithms with a serial bus channel on which

each of the plurality of algorithms are transmitted is hard-coded in a service DSP engine that the one DSP is a part of.

14. (currently amended) The method of claim 7, wherein each channel of the channelized serial bus transmits the ~~software~~ executable instructions for at least one of the algorithms.

15. (currently amended) The method of claim 7, wherein the ~~software~~ executable instructions for at least one of the algorithms is transmitted on a channel of the channelized serial bus.

16. (currently amended) The method of claim 7, wherein the ~~software~~ executable instructions for a particular algorithm is transmitted using at least one channel of the channelized serial bus.

17. (currently amended) The method of claim 6, wherein the ~~software~~ executable instructions for the plurality of ~~firmware~~ algorithms is stored in a memory of the master DSP engine.

18. (previously presented) The method of claim 1, wherein the one DSP is part of a service DSP engine that comprises at least one channel.

19. (canceled).

20. (canceled).

21. (canceled).

22. (currently amended) The method of claim 1, wherein the method further comprises storing the ~~software~~ executable instructions for the at least one algorithm into a memory that is accessible to the one DSP and wherein the type of data type is selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

23. (currently amended) The method of claim 22, wherein the ~~software~~ executable instructions for the plurality of algorithms are broadcasted using a plurality of serial blocks, wherein each of the broadcasted serial blocks comprise a portion of the ~~software~~ executable instructions for the plurality of firmware algorithms.

24. (currently amended) The method of claim 23, wherein the broadcast of each of the serial blocks is preceded by a broadcast of an address signal, the

address signal identifying the ~~software~~ executable instructions for the algorithm of the broadcasted serial block.

25. (currently amended) An apparatus for supporting digital signal processing (DSP) of a plurality of types of data, the apparatus comprising:

a serial bus comprising at least one channel over which a plurality of algorithms embodied as ~~software routines~~ executable instructions are continuously broadcasted; and,

a plurality of service DSP engines communicatively coupled to the serial bus and to at least one data line, at least one of the plurality of service DSP engines designed to selectively monitor for and receive the ~~software~~ executable instructions for at least one algorithm of the plurality of algorithms in response to a determination of a type of data that the at least one service DSP engine is to process, wherein the ~~software~~ executable instructions for the at least one algorithm is used to process data being of the type of data, the at least one service DSP engine to be positioned between a pair of networks, the at least one service DSP engine comprising a DSP and a memory, the DSP capable of executing the ~~software~~ executable instructions for the at least one algorithm.

26. (previously presented) The apparatus of claim 25, further comprising a master DSP engine implemented with a host processor, the master DSP engine coupled to the serial bus, wherein the master DSP engine continuously broadcasts the plurality of algorithms to the plurality of service DSP engines.

27. (currently amended) The apparatus of claim 26, wherein:

at least one pulse coded modulation (PCM) data stream that is received from a public switched telephone network (PSTN) is carried over the at least one data line;

at least one packet of data is generated from the PCM data stream by the at least one service DSP engine using the received ~~software~~ executable instructions for the at least one algorithm; and,

the at least one packet of data is transmitted over an Internet Protocol (IP) network, the PSTN network being a first of the networks and the IP network being a second of the networks.

28. (currently amended) The apparatus of claim 25, wherein:

at least one packet of data is received from an IP network;

at least one PCM data stream is generated from the at least one packet of data by the service DSP engine using the ~~software~~ executable instructions for the at least one algorithm; and

the at least one PCM data stream is carried over the at least one data line and is transmitted over a PSTN, the PSTN network being a first of the networks and the IP network being a second of the networks.

29. (original) The apparatus of claim 25, wherein the at least one data line comprises at least one bidirectional PCM data stream.

30. (original) The apparatus of claim 25, wherein the at least one data line comprises at least one bidirectional host bus.

31. (currently amended) The apparatus of claim 25, wherein the memory is to store the ~~software~~ executable instructions for the at least one algorithm and the type of data is selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

32. (currently amended) The apparatus of claim 31, wherein the at least one service DSP engine selectively monitors for and receives the ~~software~~ executable instructions for the at least one algorithm by determining an address of at least one channel of the serial bus on which the ~~software~~ executable instructions for the at least one algorithm is available and by unmasking a bit of an interrupt mask, the unmasked bit corresponding to the address of the at least one channel of the serial bus on which the ~~software~~ executable instructions for the at least one algorithm is transmitted.

33. (currently amended) The apparatus of claim 32, wherein the at least one service DSP engine selectively monitors for and receives the ~~software~~ executable instructions for the at least one algorithm by:

executing at least one interrupt service routine in response to receiving an interrupt signal corresponding to the unmasked interrupt bit;

receiving the ~~software~~ executable instructions for the at least one algorithm in response to execution of the interrupt service routine; and

storing the received ~~software~~ executable instructions for the at least one algorithm in the memory.

34. (previously presented) The apparatus of claim 31, wherein information correlating each of the plurality of algorithms with a serial bus channel on which each of the plurality of algorithms are transmitted is downloaded to each service DSP engine from a host processor.

35. (previously presented) The apparatus of claim 25, wherein the detected data is received from a public switched telephone network.

36. (canceled).

37. (previously presented) The apparatus of claim 25, wherein each service DSP engine comprises at least one channel.

38. (previously presented) The apparatus of claim 25, wherein at least one algorithm is transmitted on a channel of the serial bus.

39. (previously presented) The apparatus of claim 25, wherein an algorithm is transmitted using at least one channel of the serial bus.

40. (currently amended) The apparatus of claim 25, wherein each of the plurality of algorithms are broadcasted using a plurality of serial blocks, wherein each of the broadcasted serial blocks comprise a portion of the ~~software~~ executable instructions for the plurality of firmware algorithms.

41. (currently amended) A multiservice digital signal processing (DSP) system comprising:

a processor to implement a master DSP engine;

a serial bus coupled to the master DSP engine, the serial bus comprising a plurality of channels over which a plurality of algorithms embodied as ~~software routines~~ executable instructions are continuously broadcasted by the master DSP engine; and,

a plurality of service DSP engines coupled to at least one data line and the serial bus, at least one of the plurality of service DSP engines being tailored to selectively monitor for and receive the ~~software~~ executable instructions for at least one algorithm from the serial bus in response to a determination of a type of data that the at least one DSP service engine is to process, wherein the

software for the at least one algorithm is used to process data being of the type of data, the at least one service DSP engine positioned to process the data as it travels between networks, the at least one service DSP engine comprising a DSP and a memory, the DSP capable of executing the ~~software~~ executable instructions for the at least one algorithm.

42. (currently amended) The system of claim 41, wherein:

at least one pulse coded modulation (PCM) data stream transported over the at least one data line is received from a public switched telephone network (PSTN);

at least one packet of data is generated from the PCM data stream by the at least one service DSP engine using the received ~~software~~ executable instructions for the at least one algorithm; and,

the at least one packet of data is transmitted over an Internet Protocol (IP) network, the PSTN network a first of the networks, the IP network a second of the networks.

43. (currently amended) The system of claim 41, wherein:

at least one packet of data is received from an IP network;

at least one PCM data stream is generated from the at least one packet of data by the at least one service DSP engine using the ~~software~~ executable instructions for the at least one algorithm; and,

the at least one PCM data stream is transmitted over a PSTN, the PSTN network a first of the networks, the IP network a second of the networks.

44. (original) The system of claim 41, wherein the at least one data line comprises at least one bidirectional PCM data stream.

45. (original) The system of claim 41, wherein the at least one data line comprises at least one bidirectional host bus.

46. (currently amended) The system of claim 41, wherein the at least one service DSP engine selectively monitors for and receives the ~~software~~ executable instructions for the at least one algorithm by:

determining an address of at least one channel of the serial bus on which the ~~software~~ executable instructions for the at least one algorithm is available; and,

unmasking a bit of an interrupt mask in the at least one service DSP engine, the unmasked bit corresponding to the address of at least one channel of the serial bus on which the ~~software~~ executable instructions for the at least one algorithm is transmitted.

47. (currently amended) The system of claim 46, wherein the at least one service DSP engine selectively monitors for and receives the ~~software~~ executable instructions for the at least one algorithm by:

executing at least one interrupt service routine in response to receiving an interrupt signal corresponding to the unmasked interrupt bit;

receiving the ~~software~~ executable instructions for the at least one algorithm in response to execution of the interrupt service routine; and,

storing the received ~~software~~ executable instructions for the at least one algorithm in the memory.

48. (previously presented) The system of claim 46, wherein data correlating each of the plurality of algorithms with a serial bus channel on which each of the plurality of algorithms are transmitted is downloaded to each service DSP engine from the processor.

49. (canceled).

50. (previously presented) The system of claim 41, wherein each of the service DSP engines comprises at least one channel.

51. (original) The system of claim 41, wherein at least one algorithm is transmitted on a channel of the serial bus.

52. (original) The system of claim 41, wherein an algorithm is transmitted using at least one channel of the serial bus.

53. (currently amended) The system of claim 41, wherein the memory is to store the ~~software~~ executable instructions for the at least one algorithm and the type of data is selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

54. (previously presented) A computer readable medium containing executable instructions which, when executed by a digital signal processor (DSP), cause the DSP to perform a method, the method comprising:

selectively monitoring for and receiving a software routine for an algorithm from amongst a plurality of continuously broadcasted software routines for a plurality of algorithms, the selectively monitoring for and receiving being in response to a determination of a type of data that the DSP is to process; and,

processing data ~~of~~ having the determined type with software routine as the data travels between a telephony network and a data network.

55. (previously presented) The computer readable medium of claim 54 wherein the processing further comprises generating at least one packet of data from a PCM data stream, the PCM data stream having been received from the telephony network.

56. (previously presented) The computer readable medium of claim 55 wherein the telephony network is a PSTN network.

57. (previously presented) The computer readable medium of claim 54 wherein the determined type of data is audio data.

58. (previously presented) The computer readable medium of claim 54 wherein the type of data is selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

59. (previously presented) The computer readable medium of claim 58 wherein the selectively monitoring for and receiving the software routine further comprises determining an address of a broadcast channel where the software routine is available and further comprises unmasking a bit of an interrupt mask, the unmasked bit corresponding to the address.

60. (previously presented) The computer readable medium of claim 59 wherein the selectively monitoring for and receiving the software routine further comprises:

executing at least one interrupt service routine in response to receiving an interrupt signal corresponding to the unmasked interrupt bit;

receiving the software routine in response to execution of the interrupt service routine; and

storing the received software routine in a memory.

61. (previously presented) The computer readable medium of claim 54 wherein the determined type of data is voice data.

62. (previously presented) The computer readable medium of claim 54 wherein the determined type of data is facsimile data.

63. (previously presented) The computer readable medium of claim 54 wherein the determined type of data is modem data.

64. (previously presented) The computer readable medium of claim 54 wherein the processing further comprises echo cancellation.

65. (previously presented) The computer readable medium of claim 54 wherein the processing further comprises voice coding.

66. (previously presented) The computer readable medium of claim 54 wherein the processing further comprises suppression of packet bandwidth utilization during voice silence.

67. (previously presented) The computer readable medium of claim 54 wherein the processing further comprises modem relay.

68. (previously presented) The computer readable medium of claim 54 wherein the processing further comprises facsimile relay.

69. (previously presented) A method, comprising:

determining a type of data that a DSP is to process while broadcasting a plurality of software routines that the DSP is capable of executing;

selectively monitoring for and receiving at least one software routine from amongst the plurality of continuously broadcasted software routines; and,

processing data of the determined type with the at least one software routine in order to help transport the data from a first network to a second network.

70. (previously presented) The method of claim 69 wherein the processing further comprises generating a PCM data stream from at least one

packet of data, the first network being a data network, the second network being a telephony network.

71. (previously presented) The method of claim 70 further comprising transmitting the data into a PSTN network, the PSTN network being the second network.

72. (previously presented) The method of claim 69 wherein the determined type of data is audio data.

73. (previously presented) The method of claim 69 wherein the type of data is selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

74. (previously presented) The method of claim 73 wherein the selectively monitoring for and receiving the at least one software routine further comprises determining an address of a broadcast channel where the at least one software routine is available and further comprises unmasking a bit of an interrupt mask, the unmasked bit corresponding to the address.

75. (previously presented) The method of claim 74 wherein the selectively monitoring for and receiving the at least one software routine further comprises:

executing at least one interrupt service routine in response to receiving an interrupt signal corresponding to the unmasked interrupt bit;

receiving the at least one software routine in response to execution of the interrupt service routine; and

storing the received at least one software routine in a memory.

76. (previously presented) The method of claim 69 wherein the determined type of data is voice data.

77. (previously presented) The method of claim 69 wherein the determined type of data is facsimile data.

78. (previously presented) The method of claim 69 wherein the determined type of data is modem data.

79. (previously presented) The method of claim 69 wherein the processing further comprises echo cancellation.

80. (previously presented) The method of claim 69 wherein the processing further comprises voice coding.

81. (previously presented) The method of claim 69 wherein the processing further comprises modem relay.

82. (previously presented) The method of claim 69 wherein the processing further comprises facsimile relay.

83. (previously presented) An apparatus for supporting digital signal processing (DSP), the apparatus comprising:

first means for continuously broadcasting a plurality of software routines representative of a plurality of algorithms that can be executed by a DSP; and,

second means for:

1) determining a type of data to be processed, the determining occurring while the plurality of firmware algorithms are being broadcasted

2) identifying, based upon the determining, at least one software routine from the plurality of software routines;

3) selectively monitoring for and receiving the at least one software routine from the plurality of software routines and

4) processing data having the determined type of data with the at least one software routine.

84. (previously presented) The apparatus of claim 83, further comprising:

means for receiving at least one pulse coded modulation (PCM) data stream from a public switched telephone network (PSTN);

the processing means of the second means further including means for generating at least one packet of data from the PCM data stream using the received at least one software routine; and

means for transmitting the at least one packet of data over an Internet Protocol (IP) network.

85. (previously presented) The apparatus of claim 83, further comprising:

means for receiving at least one packet of data from an IP network;

the processing means of the second means further including for generating at least one PCM data stream from the at least one packet of data using the received at least one software routine; and

means for transmitting the at least one PCM data stream over a PSTN.

86. (canceled).

87. (previously presented) The apparatus of claim 83 wherein the means for selectively monitoring for and receiving at least one software routine further comprises:

means for storing the at least one software routine; and,

wherein the type of data is selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

88. (previously presented) The method of claim 87, wherein the means for selectively monitoring for and receiving at least one software routine further comprises means for determining an address of at least one broadcast channel where the at least one software routine is available and means for unmasking a bit of an interrupt mask, the unmasked bit corresponding to the address.

89. (previously presented) The method of claim 88, wherein the means for selectively monitoring for and receiving at least one software routine further comprises:

means for executing at least one interrupt service routine in response to receiving an interrupt signal corresponding to the unmasked interrupt bit;

means for receiving the at least one software routine in response to execution of the interrupt service routine; and,

means for storing the received at least one software routine.

90. (previously presented) A method, comprising:

determining a type of data to be processed by a Digital Signal Processor (DSP) while broadcasting a plurality of software routines that can be executed by the DSP toward the DSP;

selecting a software routine from amongst the plurality of broadcasted software routines in response to the determining; and,

processing data by executing the software routine upon the DSP, the data being of the type of data, the data in transition between networks.

91. (previously presented) The method of claim 90 wherein the processing further comprises generating at least one packet of data from a PCM data stream, the data in transition from a data network to a telephony network.

92. (previously presented) The method of claim 91 wherein the telephony network is a PSTN network.

93. (previously presented) The method of claim 91 wherein the data further comprises voice or audio data.

94. (previously presented) The method of claim 90 wherein the selecting further comprises:

determining where the software routine resides amongst the continuously broadcasted software routines

storing the selected software routing into a memory.

95. (previously presented) The method of claim 90 wherein the data further comprises video data.

96. (previously presented) The method of claim 90 wherein the data further comprises facsimile data.

97. (previously presented) The method of claim 90 wherein the data further comprises modem data.

98. (previously presented) The method of claim 90 wherein the processing further comprises echo cancellation.

99. (previously presented) The method of claim 90 wherein the processing further comprises voice coding.

100. (previously presented) The method of claim 90 wherein the processing further comprises suppression of packet bandwidth utilization during voice silence.

101. (previously presented) The method of claim 90 wherein the processing further comprises modem relay.

102. (previously presented) The method of claim 90 wherein the processing further comprises facsimile relay.

103. (previously presented) The method of claim 90 further comprising detecting a change in the type of data that the DSP is to process

104. (previously presented) The method of claim 103 further comprising selecting a new software routine from the plurality of broadcasted software routines in response to the detecting a change.

105. (previously presented) The method of claim 104 further comprising replacing the software routine with the new software routine in a memory that is accessible to the DSP

106. (previously presented) The method of claim 105 further comprising processing data having the new type of data by executing the new software routine with the DSP

107. (previously presented) The method of claim 90 wherein a first of the networks is a telephony network and a second of the networks is a data network.

108. (previously presented) The method of claim 107 wherein the data network is an IP network.

109. (previously presented) The method of claim 107 wherein the telephony network is an PSTN network.

110. (previously presented) The method of claim 109 wherein the data network is an IP network.

111. (previously presented) The method of claim 90 wherein one of the networks is a telephony network.

112. (previously presented) The method of claim 111 wherein the telephony network is a PSTN network.

113. (previously presented) The method of claim 90 wherein one of the networks is a data network.

114. (previously presented) The method of claim 113 wherein the data network is an IP network.

115. (previously presented) An apparatus, comprising:

a) a processor to implement a master DSP engine that continuously broadcasts a plurality of software routines;

b) a plurality of service DSP engines, each of said service DSP engines having its own Digital Signal Processor (DSP) and memory; and,

c) a bus to transport said plurality of software routines toward said plurality of service DSP engines, said memory of each service DSP engine capable of storing a particular software routine selected from said broadcasted plurality of software routines as a consequence of said memory's corresponding service DSP engine having determined the particular software routine in response to determining a type of data that its constituent DSP is to process, the type of data being selected from the group consisting of:

modem;

audio;

voice;

video; and.

facsimile.

116. (previously presented) The apparatus of claim 115 further comprising a PCM stream line coupled to a plurality of said service DSP engines.

117. (previously presented) The apparatus of claim 115 wherein said bus is a channelized serial bus.

118. (previously presented) The apparatus of claim 115 wherein said service DSP engine further comprises a serial port to receive said particular software routine.

119. (previously presented) The apparatus of claim 118 wherein said serial port is a TDM serial port.

120. (previously presented) The apparatus of claim 115 wherein said processor is a host CPU.

121. (previously presented) The apparatus of claim 115 further comprising a second memory that is accessible to said processor, said memory to store said plurality of software routines.

122. (previously presented) The apparatus of claim 121 wherein said plurality of software routines further comprise an echo cancellation software routine.

123. (previously presented) The apparatus of claim 121 wherein said plurality of software routines further comprise a voice coding software routine.

124. (previously presented) The apparatus of claim 123 wherein said voice coding software routine is a parametric voice coding software routine.

125. (previously presented) The apparatus of claim 123 wherein said voice coding software routine is a non-parametric voice coding software routine.

126. (previously presented) The apparatus of claim 121 wherein said plurality of software routines further comprise a suppression of packet bandwidth utilization during voice silence software routine.

127. (previously presented) The apparatus of claim 121 wherein said plurality of software routines further comprise facsimile relay software routine.

128. (previously presented) The apparatus of claim 121 wherein said plurality of software routines further comprises a modem relay software routine.

129. (previously presented) The apparatus of claim 115 wherein each service DSP engine is positioned to process data as the data travels between networks.

130. (previously presented) An apparatus comprising:

a service DSP engine comprising a DSP and a memory, said service DSP engine to process data as it travels between networks, said service

DSP engine to determine a particular software routine from a plurality of continuously broadcasted software routines based upon said data's type, said memory to store said particular software routine, said DSP to execute said particular software routine, a first of said networks being a telephony network, a second of said networks being a data network.

131. (previously presented) The apparatus of claim 130 wherein said plurality of fsoftware routines further comprise an echo cancellation software routine.

132. (previously presented) The apparatus of claim 130 wherein said plurality of software routines further comprise a voice coding software routine.

133. (previously presented) The apparatus of claim 132 wherein said voice coding software routine is a parametric voice coding software routine.

134. (previously presented) The apparatus of claim 132 wherein said voice coding software routine is a non-parametric voice coding software routine.

135. (previously presented) The apparatus of claim 130 wherein said plurality of software routines further comprise a suppression of packet bandwidth utilization during voice silence firmware routine.

136. (previously presented) The apparatus of claim 130 wherein said plurality of software routines further comprise facsimile relay software routine.

137. (previously presented) The apparatus of claim 130 wherein said plurality of software routines further comprises a modem relay software routine.

138. (previously presented) The apparatus of claim 130 wherein said data's s a type selected from the group consisting of:

modem;

audio;

voice;

video; and,

facsimile.

139. (canceled).

140. (previously presented) The apparatus of claim 138 wherein said data network is an IP network.